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(71) Applicant *(for all designated States except US)*: ADVANCED TECHNOLOGY MATERIALS, INC.? [US/US]; 7 Commerce Drive, Danbury, Connecticut 06810 (US).

(72) Inventors; and
(75) Inventors/Applicants *(for US only)*: CARRUTHERS, Donald, J. [US/US]; 321 Oakwood Drive, Fairfield, Connecticut 06824 (US). ARNO, Jose, I. [ES/US]; 13 Twilight Lane, Brookfield, Connecticut 06824 (US).

(74) Agent: MARGARET CHAPPUIS; Advanced Technology Materials, Inc., 7 Commerce Drive, Danbury, Connecticut 06810 (US).

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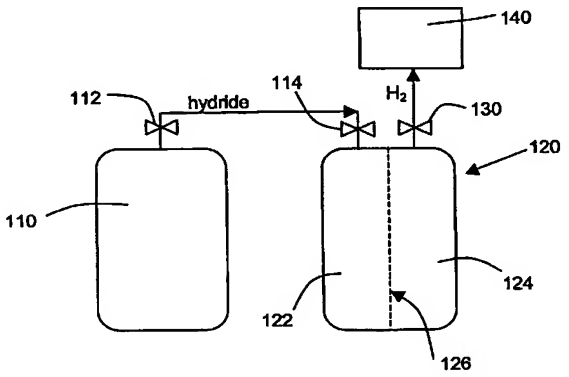

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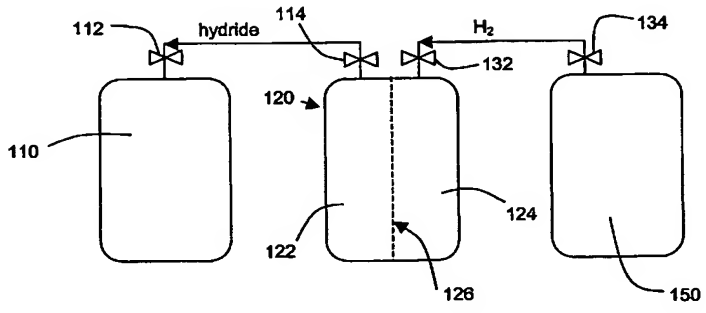

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(57) Abstract: An apparatus and method including storage and dispensing vessels to safely store and dispense gaseous hydrides, where the storage and dispensing vessels contain a solid-phase physical sorbent medium having a physically sorptive affinity for gaseous hydrides, and wherein the gaseous hydride is decomposed in the apparatus to generate hydrogen gas. The gaseous hydrides include, but are not limited to, silane, germane, stibine and diborane. The gaseous hydrides decompose spontaneously and/or decomposition is enhanced using surface modified adsorbents. The hydrogen generated by the apparatus may be used in a fuel cell or other hydrogen gas consuming unit.

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